MODIS DATA STUDY TEAM PRESENTATION

October 12, 1990

AGENDA

1. Action Items
2. A Few Discussion Issues Relating to the MODIS Level-1 Processing Design
3. MODIS Level-1 Processing System Preliminary Design Milestone Chart

ACTION ITEMS

8/10/90-1 [John Barker]: Specify data requirements for the MCST Support Products (at Level-1A and Level-1B). STATUS: Presentation was given at 9/21 meeting of the MODIS Data Study Team Meeting. However, specific MCST support requirements were not listed; open.

10/5/90-1 [John Blaisdell]: Contact Dr. Bob Evans at the University of Miami to discuss the Earth shape model that the Oceans Discipline Group would prefer for use in MODIS Level-1 geolocation activities. STATUS: Open.

10/5/90-2 [Doug Hoyt]: Examine MCST documentation and identify missing or additional information items that the MODIS Data Study Team will need to complete the specification of MODIS calibration processing. STATUS: Open.

A FEW DISCUSSION ISSUES RELATING TO THE MODIS LEVEL-1 PROCESSING DESIGN

1. **Land/Ocean Boundary and Pixel Location Requirements.** As currently structured, the Level-1 Processing Design shows the generation of Anchor Point locations for each scan but not the interpolation of these locations to determine an Earth location for each pixel. Recently, the team has decided to include a land/ocean flag as a part of Level-1 processing. Should an actual Earth location be generated for each pixel so that a land/ocean flag can be generated? Or should we define a general land/ocean transition region where either land or ocean might occur and let the data user determine actual specific land or ocean pixel locations? Could we perhaps evaluate the land/ocean flag only at anchor points? Other alternatives?

2. **Need to Append MODIS Instrument Control Log to Level-1A Data.** Considering the housekeeping and engineering data included in the down-linked instrument data stream, is there a need to retain Instrument Control Log Data as part of the Level-1A data? The present processing design is ambiguous on this point.

3. **Received Level-0 Data as Driver for Level-1 Processing.** The presently documented processing design uses the Instrument Control Log to generate a list of expected data items and uses this list to request MODIS data from EOSDIS data storage facilities. If the Instrument Control Log were in error or the Control Log were not available, received MODIS data might never be requested and would therefore not be stored in the Level-1A product. An alternative design would use actually received data to generate a master list of instrument scans completed, and would seek to find and append all data items required to complete the individual scan packets. Any objections or problems foreseen with the new approach?

4. **Use of CDOS-Provided "Accounting Data" and Instrument Control Log for Received Data DQA.** If the approach outlined in Item 3 above is adopted, should the system nevertheless compare the data actually received with expectations based on CDOS-provided "Accounting Data" and the Instrument Control Log as a way of monitoring received data quality and assuring received data completeness?

5. **Retention of Instrument-Generated Calibration Data.** Is it agreed that all calibration-specific data items in the data stream generated by the instruments should be retained as they originally occurred in the data stream when incorporated in the Level-1A product? May calibration-specific data items generated by the instrument be eliminated from the Level-1B product?

6. **Definition of Orbital Data Block and Need to Preserve Whole Scan Packets at Orbit Boundaries.** Should an orbit of data be defined with respect to equator crossings or North/South extrema? How should the system deal with scan packets that span an orbit

boundary? How should the system deal with scan packets or orbit data blocks that span a date boundary (midnight, UTC)?

7. **Treatment of Scene Boundaries.** How should the corresponding issues be handled if "Scenes" are defined for Level-1B products?

8. **Time or North/South Ordering of Scan Lines.** On the ascending orbit segment, data is acquired in South to North order and time sequenced data would flow from South to North. Data users may prefer to access data from North to South in order to maintain the usual "top-to-bottom" access direction such as occurs in the reading of a document. Suggestions?

MODIS LEVEL PROCESSING SYSTEM
PRELIMINARY DESIGN

Task 0: Structured Walk Through of existing diagrams

Find inconsistencies in the existing diagrams. Understand other workers processing methodologies.

Task 1: Functional Requirements

Using the existing flow diagrams, backsolve for the requirements necessary to perform the processing steps outlined.

Task 2: Data definitions

Define the data products in a functional manner for the expected level 0 data, and the output data products (functionally) designated level 1A and 1B.

Task 3: EOSDIS/MODIS consistencies

Determine and coordinate any inconsistencies between the EOSDIS SOW specifications and structured diagrams and our MODIS structured diagrams.

Task 4: MODIS Structured Diagrams, next rev

Split diagrams into context and flow structures. Redefine store items, control items, data items, etc.

Task 5: Data Dictionary, next rev

Add additional information to the data dictionary in both type and content. Discretely define the data dictionary entries.

Task 6: Event List

Generate an event list of items to be acted upon by the MODIS processing system. This will lead to a state transaction diagram.

Task 7: Stores Determination

Determine the type of store items: database, hard copy, sequential records, etc.

Task 8: Case Tool Selection

Task 9: Structured Walk Through of the Revised Design
Peer review of the next revision of the MODIS Processing Structure.

DATE : October 12, 1990

KEY:

△ Completion Date

MODIS LEVEL-1 PROCESSING SYSTEM PRELIMINARY DESIGN